

Message

**From:** Smith, Michael (Energy) [Michael.Smith@energy.virginia.gov]  
**Sent:** 1/31/2023 12:29:08 PM  
**To:** Voigt, Gregory [Voigt.Gregory@epa.gov]; Conway, Bette [Conway.Bette@epa.gov]; Geiger, Ashley [Geiger.Ashley@epa.gov]; Vicenty-Gonzalez, Juan [VicentyGonzalez.Juan@epa.gov]  
**CC:** Baker, Gregory (Virginia) [Greg.Baker@energy.virginia.gov]; Worley, Jared (Energy) [Jared.Worley@energy.virginia.gov]  
**Subject:** Response to EPA Region III regarding underdrains not monitored for mining waste load in Callahan Creek watershed  
**Attachments:** EPA UD Callahan.xlsx

To: EPA Region III TMDL staff,

The following information is submitted in regard to the questions raised in recent telephone conversations between Virginia Energy and EPA personnel on the magnitude of loading from hollow fill underdrains that are not monitored for TMDL waste load accounting purposes. These underdrain locations may have been deleted due to bond release after mining completion or due to deletion of an associated sediment structure where TMDL waste load would be accounted.

The Virginia Division of Mined Land Repurposing (MLR) calculates mining waste load at the NPDES monitoring location associated with the sediment control structure through which the hollow fill underdrain discharge passes before reaching the receiving stream. Currently, if that sediment structure is removed after reclamation, then the NPDES monitoring location is deleted and the underdrain discharge, if it is still present, is not included in the mining waste load calculated by MLR. Therefore, EPA requested that MLR quantify the undocumented coal mining TDS load entering the Callahan Creek watershed from underdrain discharges associated with hollow fills in order to make a permitting determination regarding a proposed new coal mining permit in the watershed. The following information documents MLR's efforts to estimate the undocumented TDS loading from hollow fill underdrains where NPDES monitoring has ceased.

The Callahan Creek TMDL was submitted March 29, 2006 for EPA approval and subsequently approved June 20, 2006. The TMDL was modeled from data collected prior to and including December 2004. Therefore, possible underdrains discharging unmonitored TDS load to the Callahan Creek watershed were selected from those underdrains that have the associated sediment control structures removed after December 2003 (to provide 1yr overlap) to ensure that TDS loading not modeled in the TMDL is accounted. The geographic locations of possible underdrains identified were compared with the respective sediment control structures located down gradient. If the discharge from an underdrain passed through a monitored NPDES discharge location, then it was eliminated from the list as its loading is currently accounted at the NPDES discharge location. The following locations were determined to not be monitored for TDS load:

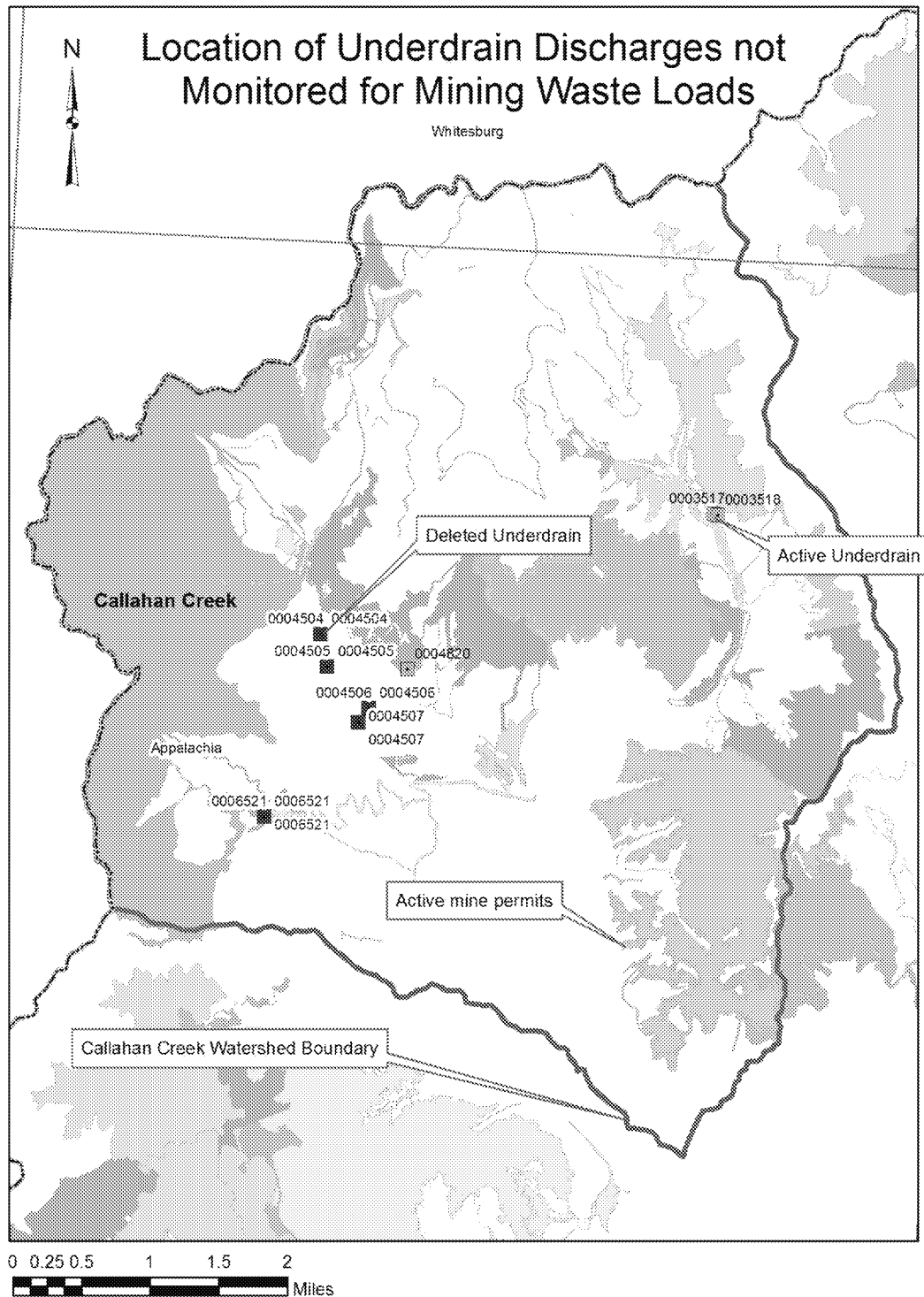
Easting	Northing	MPID No	Permit No
10213036	3545404	0003017	1201597
10232944	3542117	0003518	1602329
10217640	3537558	0004504	1101794
10217893	3536302	0004505	1101794
10219484	3534693	0004506	1101794
10219079	3534147	0004507	1101794
10220977	3536210	0004820	1102365
10215453	3530515	0006521	1202019
Note: Location coordinates are NAD83, Virginia South State Plane			

The underdrain locations selected were deleted at various times and therefore MLR utilized the data from the last two years of monitored discharge as the most reasonable estimate of current discharge quantity and quality. The data for

flow, TSS concentration and TDS concentration were averaged for the two year period and estimated loadings calculated from the averaged data. The resulting loading not currently reported as waste load or load to the watershed is approximately 5,443 kg/yr of TSS and 243,993 kg/yr of TDS. The mining waste load allocation for TSS is 182,500 kg/yr and for TDS is 2,610,000 kg/yr. Data for individual discharges is presented below:

MPID No	Average Flow (gpm)	Average TSS Conc. (mg/L)	Average TDS Conc. (mg/L)	Average TDS Conc. w/ Conductivity estimate (mg/L)	TSS Loading (kg/yr)	TDS Loading (kg/yr)
0003517	17.5	10.0	504.3	NC	348.1	17,556.8
0003518	37.7	10.0	365.3	NC	750.5	27,413.3
0004504	48.1	13.0	398.3	443.9	1,243.3	42,451.9
0004505	15.6	18.4	310.4	315.3	571.0	9,782.9
0004506	0.0	NA	NA	NC	0.0	0.0
0004507	0.0	NA	NA	NC	0.0	0.0
0004820	22.5	13.3	607.7	NC	596.8	27,198.0
0006521	127.5	7.6	477.8	471.6	1,933.8	119,589.9
<b>Total</b>					<b>5,443.4</b>	<b>243,992.8</b>
Notes: NA - Not Applicable						
NC - Not calculated						

Please note that underdrains at the 0004506 and 0004507 locations do not discharge and 0003518 and 0004505 discharge TDS at a concentration near or below the 334 mg/L TMDL endpoint for TDS. Underdrain locations referenced in this discussion are depicted below:



The raw data utilized for the estimates is included in the attached Excel spreadsheet. Please contact me if you have comments or questions.

Regards,

Michael Smith, P.G. | Hydrogeologist/Compliance Data Manager  
Virginia Department of Energy

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